

Algebra I

6-4

Solve Compound Inequalities

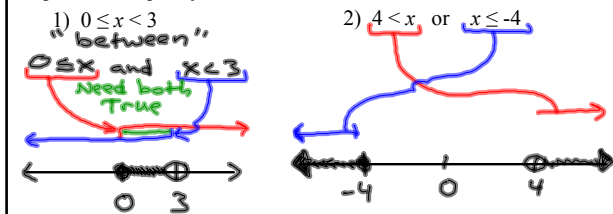
True / False

- 1) The chalkboard and the floor are black. **False**
Yes No
- 2) The chalkboard or the floor is black. **True**
- 3) The walls or ceiling is white. **True**
Yes Yes
- 4) The walls and the ceiling are white. **True**

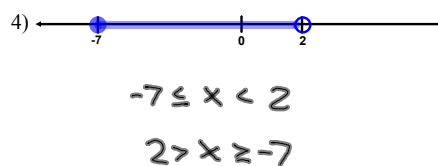
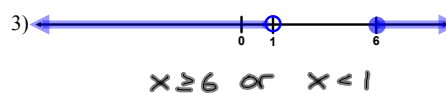
and → 1 no makes it false
or → 1 yes makes it true.

Compound inequality - more than one inequality

Graph each inequality.



Write a compound inequality for each graph shown.



Conjunction-

and, For an and to be true, all parts must be true.

Graphs usually look like:



Disjunction-

or,

For an or to be true, at least one part must be true.

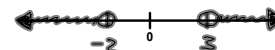
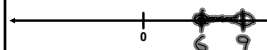
Graphs usually look like:



Solve.

5) $14 \leq 3x - 4 < 23$
 $14 + 4 \leq 3x - 4 + 4$ and $3x - 4 < 23 + 4$
 $18 \leq 3x$ and $3x < 27$
 $6 \leq x$ and $x < 9$

6) $9x + 1 < -17^{-1}$ or $7x - 12 > 9^{+12}$
 $\frac{9x + 1}{9} < \frac{-18}{9}$ or $\frac{7x - 12}{7} > \frac{21}{7}$
 $x < -2$ or $x > 3$



Assignment:

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1, 3-8 all,

12-26 even,

42-44 even.